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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/063,771

05/11/2002

Guu-Chang Yang

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01/09/2006

NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION

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MERRIFIELD, VA 22116

EXAMINER

FERRIS, DERRICK W

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/063,771

Applicant(s)

YANG ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-8,10,11,13-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 4,9,12,17 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

1. **Claim 16** is missing. Please renumber the claims so that claim 16 is no longer missing. For the purpose of the rejection the claims are addressed as originally presented.
2. **Claim 9** is objected to because of the following informalities: claim 9 has two periods in the claim. Claim 9 may only contain one period in the claim. It appears from claim 5 that claim 9 should probably be two separate claims. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 3, 5-8, 10, 11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of “Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences” to *Tseng et al.* (“*Tseng*”).

As such to **claim 1**, *Belaiche* discloses generating a code tree of two-dimensional orthogonal variable spreading factor codes (2D-OSVF), where each node of the code tree has a corresponding matrix, see e.g., paragraph 0020 on page 1 with respect to OSVF.

*Belaiche* also teaches selecting an  $N \times M$  matrix from a node of the code of tree, where  $N$  relates to a spreading factor (i.e.  $N$  is SF), see e.g., page 2. In particular, for the rejection note that alpha is assumed to be equal to zero. As such, see e.g., paragraph 0028 on page

2 with respect to a formula for the spreading code factor (SF) where  $K$  is equal to  $N$  in the equation. As such, with respect to a first and second matrices see e.g., matrix  $A$  and  $B$  for paragraphs 0021 and 0022 on page 2. In particular, note that the code is computed using a kronecker product, see e.g., paragraph 0021 on page 2 and is computed iteratively since the codes are computed recursively, see also e.g., paragraph 0030 on page 2.

*Belaiche* is silent or deficient to the further limitation of a MS-DS/CDMA system and thus the further limitation of where  $M$  relates to the number of available frequency carriers.

*Tseng* teaches in combination the further recited limitation above at e.g., right-hand column on page 53 since each of the  $M$  sequences is assigned to an individual user which is assigned to a carrier.

The proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Belaiche* by clarifying that the third generation CDMA system as taught by *Belaiche* is an MC DS/CDMA system.

As such, examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, the motivation for modifying the reference or to combine the reference teachings would be to help reduce interference by transmitting on more than one carrier. In particular, *Tseng* cures the above-cited deficiency by providing a motivation found at e.g., right-hand column on page 53. Second, there would be a reasonable expectation of success since both references teach using CDMA.

As to **claim 3**, see e.g., figure 3 of *Belaiche* with respect to a code tree.

As to **claim 5**, *Belaiche* teaches using  $N \times N$  matrixes which would include a  $2 \times 2$  matrix as known by one skilled in the art, see e.g., paragraph 0021 on page 2.

As to **claim 6**, see e.g., paragraph 0026 on page 3 of *Belaiche* with respect to orthogonally of codes in a tree.

As to **claim 7**, see similar rejection to claim 1.

As to **claim 8**, in skilled in the art would note that in processing the matrix the matrix is stored in some type of memory in order to perform processing.

As to **claim 10**, see similar rejection to claim 5.

As to **claim 11**, see similar rejection to claim 1.

As to **claim 13**, see similar rejection to claim 5.

5. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of "Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences" to *Tseng et al.* ("*Tseng*") in further view of U.S. Patent No. 6,975,615 B1 to *Toskala et al.* ("*Toskala*").

As such to **claim 2**, *Belaiche* and *Tseng* may be silent or deficient to the further limitation of wherein the children nodes of the code tree correspond to data transmission rates that are slower than those of parent nodes, thereby enabling multirate transmissions by utilizing orthogonal matrices in the code tree.

*Toskala* teaches in combination the further recited limitation above at e.g., column 8, lines 1-25 since the data rate is depends on the length of a spread code by traversing a code tree.

The proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Belaiche* and *Tseng* by clarifying that changing the data rate is well known in the art.

As such, examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, the motivation for modifying the reference or to combine the reference teachings would be transmit more or less information as needed. In particular, *Toskala* cures the above-cited deficiency by providing a motivation found at e.g., column 8, lines 1-25. Second, there would be a reasonable expectation of success since both references teach using CDMA.

6. **Claims 14, and 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of "Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences" to *Tseng et al.* ("*Tseng*") in further view of U.S. Patent Application 2002/01012981 A1 to *Jechoux*.

As such to **claim 14**, see similar rejection to claim 1.

*Belaiche* and *Tseng* may be silent or deficient to the further limitation of where the base station generates the matrix and then transmits the M x N matrix to a mobile station.

*Jechoux* teaches in combination the further recited limitation above at e.g., paragraph 0052 on page 3 since matrix is sent from the base station to the mobile station.

The proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Belaiche* and *Tseng* by clarifying that it

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is well known in the art to send configuration information to the mobile station from the base station including a code matrix such as the above limitation.

As such, examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, the motivation for modifying the reference or to combine the reference teachings would be to configure the mobile station. In particular, the mobile device or receiver would need to know what spreading codes to use and thus what matrix to use.

As to **claim 18**, see similar rejection to claim 5.

As to **claim 19**, see similar rejection to claim 6.

As to **claim 20**, see similar rejection to claim 14.

7. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application 2002/0006156 A1 to *Belaiche* in view of "Asynchronous Multicarrier DS-CDMA Using Mutually Orthogonal Complementary Sequences" to *Tseng et al.* ("*Tseng*") in further view of U.S. Patent Application 2002/01012981 A1 to *Jechoux* and U.S. Patent No. 6,975,615 B1 to *Toskala et al.* ("*Toskala*").

As to **claim 15**, see similar rejection to claim 2.

#### ***Allowable Subject Matter***

8. **Claims 4, 9, 12, 17 and 21** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (571) 272-3123.

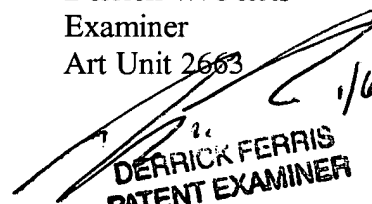
The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571)272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
DWF

Derrick W. Ferris  
Examiner  
Art Unit 2663

 1/6/06  
**DERRICK FERRIS  
PATENT EXAMINER**